

“RATIO ANALYSIS IN SELECTED DAIRY PLANTS OF GUJARAT”

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ABSTRACT

India is the highest milk producing country in the world. Over the years, the milk procurement by cooperative dairy plants, particularly in Gujarat state, has increased and consequently the processing capacities of dairy plants have also increased. However, there was a lack of research on the performance of these dairy plants over a considerable period hence this research was undertaken to analyse the financial performance of these dairy cooperatives and bring out the output which could be used for improving the performance as well as for opening new research areas in this direction. The present study was conducted by selecting 12 dairy plants of different size from the state of Gujarat. The financial statements of the dairy plants were collected from the Annual reports of the dairies and subsequently the financial ratio technique was applied to evaluate the performance of the dairy plants. From the analysis it could be concluded that- the Liquidity position of the selected dairy plants was satisfactory (Current ratio 1.24), the figures of leverage ratios indicate that the selected dairy plants used to borrowed capital upto 80 % of total funds. Also, the Overall working capital position of the industry as measured by Debtors, Inventory and Creditors turnover ratio, was found to be satisfactory. The category wise computation of financial ratios indicated that Small dairy plants used lower proportion of borrowed funds and their debt servicing capacity measured by Interest coverage ratio was better than the industry. Also, the Total assets Turnover & Current assets turnover of Small Plants (5, 8) was better than Industry (4,7), indicating better management of assets by Small plants. With respect to profitability, the Gross profit ratio, Return on Assets (ROA) and Return on Equity (ROE) of small plants (7.9%, 2.06% & 10.65%) was found to be higher than Industry (6.26%, 1.40% & 8.63%). Analysis of the cost structure of the selected dairy plants indicated that the major costs for dairy industry were – Raw material cost (84.5%), packaging (3.53%), Power and fuel (2.10%) and processing (1.30%). The Medium sized dairy plants scored relatively poor on all major financial ratios as compared to other two categories indicating a scope of further research in this area.

KEYWORDS: Ratio Analysis of Cooperative Dairies, Comparative Financial Ratios for Small, Medium and Large Dairy Cooperatives & Gujarat Dairy Sector

Received: Jan 08, 2017; **Accepted:** Feb 16, 2017; **Published:** Feb 18, 2017; **Paper Id.:** IJAFMRAPR20171

INTRODUCTION

India is the highest milk producing country in the world. The Indian dairy sector has mainly developed under the An and Model Cooperative structure wherein the milk producers sell their surplus milk to nearby Village Dairy Cooperative societies (VDCS) and the VDCS in turn sell their milk to the District milk cooperative Union (generally known as District Dairy plant) which process the milk and sell the products into various markets.

Over the years, the milk procurement of these dairy plants has increased and processing capacities have also increased considerably. However a persisting need was felt to analyse the financial performance of these dairy cooperatives and bring out the outputs which can be used for improving the performance as well as for opening new research areas in this direction.

The present study was conducted by selecting 12 dairy plants of different size from the state of Gujarat. The financial statements of the dairy plants were collected from the Annual reports of the dairies and subsequently the financial ratio technique was applied to evaluate the performance of the dairy plants.

Ratio Analysis

Ratio analysis is a systematic use of ratios to interpret the financial statements so that the strengths and weakness of a firm, as well as its historical performance and current financial condition can be determined. The main ratios used widely are:-

- **Liquidity Ratios**

Liquidity ratios reflect the ability of a firm to meet current /short term obligations when they become due for payment. The main ratios used to measure the liquidity of a firm are (a) Current ratio (b) Quick ratio /acid test ratio (c) Net working capital

- **Structural Ratios/Leverage Ratios**

While debt represents a cheaper source of finance, it usually carries a financial risk which is created by the obligatory payment of interest and final repayment of capital. The leverage ratio helps in assessing the risk arising from the use of debt capital. The main ratios in this category are : Debt -equity ratio, debt – asset ratio, Interest coverage ratio and Fixed charge coverage ratios.

- **Turnover ratios**

Also referred to as the asset management ratios, measure how efficiently the assets are employed by a firm. The main ratios are: Inventory turnover ratio, Debtors' Turnover ratio, fixed asset turnover ratio and Total asset turnover ratio.

- **Profitability Ratios**

These ratios measure the profitability of the firm. The main ratios are: Gross profit margin, Net profit margin, Return on equity, Return on assets, return on capital employed etc.

OBJECTIVE OF THE STUDY

To carry out the financial statement analysis of Dairy co-operative milk unions of Gujarat over a period of five years from 2007 to 2011.

METHODOLOGY

The research was carried out by using the secondary data published in the annual reports of the dairy cooperative units. The period covered under the study is from year 2007 to 2011. Total 12 cooperative dairy plants from Gujarat state were selected. The dairy plants were categorized into three categories – Small, Medium and Large and under each category

4 plants were selected. Total 29 different ratios were calculated for each dairy for the period for 2007 to 2011. Further, ratios were calculated for Medium, Small and Large dairies category. Also, the average cost structures (For Overall Industry, Small, Medium and Large size categories and average income structures (For Overall Industry, Small, Medium and Large size categories) were determined. From the results appropriate interpretations were made.

RESULTS

The following financial ratios were calculated.

Table 1: Average Liquidity Ratios for all the 12 Selected Dairy Plants for the Period 2007 to 2011

Sr. No.	Liquidity Ratios	2007	2008	2009	2010	2011
1	Current ratio	1.15	1.28	1.10	1.06	1.45
2	Quick Ratio	0.79	0.78	0.77	0.77	1.17
3	Cash ratio	0.40	0.33	0.42	0.49	0.80
4	Level of current assets to total assets	0.65	0.68	0.66	0.68	0.67
5	Long term investments to total assets	0.06	0.06	0.06	0.05	0.07

From the above table it can be seen that over the selected period the current ratio remained just over 1 indicating a satisfactory liquidity position, and in general, considering the fact that cooperative dairies are engaged in Liquid milk selling (i.e Pouch milk) which is primarily a cash business, the current ratio, quick ratio as well cash ratio were all satisfactory.

Table 2: Average Leverage Ratios (or %) for all the 12 Selected Dairy Plants for the Period 2007 to 2011

Sr. No	Leverage Ratios	2007	2008	2009	2010	2011
1	Total Debt to Assets %	77%	78%	78%	81%	83%
2	Total Equity to total Assets	23%	22%	22%	19%	17%
3	Total Debt to Equity	5	5	5	6	7
4	Interest coverage ratio	3.21	2.84	2.44	2.33	2.38
5	Long term debt to Long term funds	44%	48%	40%	41%	50%

The above data indicates that the Total Debt to Assets (%) has increase over the selected period and at that same time the as is obvious, the percentage of equity has decreased. Further, the Interest coverage ratio has also decreased considerably. This may be due to increased borrowing of cooperative dairies for expansion plans during the period.

Table 3: Average Turnover Ratios for all the 12 Selected Dairy Plants for the Period 2007 to 2011

Sr. No	Turnover Ratios	2007	2008	2009	2010	2011
1	Inventory turnover	23	23	24	26	24
2	Inventory Period	21	23	23	21	20
3	Debtors turnover	47	50	52	63	74
4	Debtors or Receivables period	20	18	18	16	17
5	Total creditors turnover ratio	10	12	13	12	10
6	Creditors period	41	36	33	37	42
7	Fixed Assets Turnover	16	18	18	16	15
8	Total Assets turnover	4	4	4	4	3
9	Current assets turnover	7	7	7	6	6

From the above table it is clear that the inventory turnover of the selected dairy cooperatives was around 23 and inventory holding period of around 23 days, indicating that Inventory management has been quite satisfactory and similarly debtors receivable period was quite low around 18 days which indicates a good debtor control.

The creditors' turnover ratio was low around 12 and creditors period around 37 days indicate good use of credit facilities. Over the selected period the Fixed Assets Turnover and Current assets turnover have almost remained constant.

Table 4: Average Profitability Ratios for all the 12 Selected Dairy Plants for the Period 2007 to 2011

Sr. No	Profitability Ratios	2007	2008	2009	2010	2011
1	Gross profit margin	7.18%	6.45%	6.22%	5.92%	5.54%
2	Net profit margin	0.38%	0.36%	0.33%	0.41%	0.41%
3	Return on Assets	1.51%	1.42%	1.36%	1.44%	1.29%
4	Return on equity	6.46%	7.87%	8.53%	10.17%	10.12%

The above table indicates that for the selected dairy cooperatives, during the selected period the Net profit margin increases slightly and though the return on assets decreased marginally the return on equity increases considerably. This may be due to better use of the increased leverage during the later years.

Table 5: Average Operating Ratios for all the 12 Selected Dairy Plants for the Period 2007 to 2011

Sr. No	Operating Ratios	2007	2008	2009	2010	2011
1	COGS to sales ratio	0.9282	0.9355	0.9378	0.9408	0.9445
2	Administrative cost to Sales	0.0602	0.0543	0.0503	0.0489	0.0456
3	Marketing, selling and distribution to sales	0.0092	0.0083	0.0078	0.0074	0.0073
4	Financial charges to sales	0.0049	0.0052	0.0064	0.0065	0.0089
5	Net profit margin	0.0038	0.0036	0.0033	0.0041	0.0041

From the above table it can be seen that for the selected cooperative dairies, the Cost of Goods Sold (COGS) to sales ratio has increased from 0.9282 to 0.9445 in the given period. However, over the given period, the administrative cost, Marketing, Selling & distributing cost have decreased, indicating efficient operations. Further, the financial charges to sales ratio has almost doubled during the period which may be due to the increase in the debt during the later years (the interest coverage ratio has also declined during the period).

Comparison of Financial Ratios with Respect to Size of Dairy Plants

The previous section of the results focussed on various ratios of the dairy plants taken together, irrespective of the size of the plant. However, it has been seen that the size of the selected dairy plants, in terms of their processing capacities, was spread over a big range of around 2 lakh litres per day (LLPD) to around 35 LLPD. Hence, it was decided to categorize the selected dairy plants into three categories – Small, Medium and Large, based on their processing capacities. The various financial ratios calculated for each category have been presented in a comparative form in the below mentioned tables.

Table 6: Category Wise Liquidity Ratios for all 12 Selected Dairy Plants, for Small (0-5 Lakh Liters Per Day) Dairy Plants, Medium (5-10 Lakh Liters Per Day) Dairy Plants and Large Size (above 10 Lakh Liters per Day) Dairy Plants

Sr. No.	Financial Ratios	Average Value for all 12 Plants	Average Value for Small Plants	Average Value for Medium Plants	Average Value for Large Plants
	Liquidity Ratios				
1	Current ratio	1.24	1.35	0.92	1.45
2	Quick Ratio	0.89	1.07	0.65	0.95
3	Cash ratio	0.49	0.50	0.35	0.62
4	level of current assets to total assets	0.70	0.63	0.68	0.78
5	Long term investments to total assets	0.03	0.06	0.02	0.02

From the above table it can be seen that the Current ratio and quick ratio, as well as the cash ratio were quite healthy for Small & Large categories of dairy plants however the same ratios for Medium sized dairy plants were considerably low, indicating relatively poor liquidity position of medium sized plants.

Table 7: Category Wise leverage Ratios for all 12 Selected Dairy Plants, for Small (0-5 Lakh Liters per day) dairy plants, Medium (5-10 Lakh Liters per day) Dairy Plants and Large Size (Above 10 Lakh Liters per day) Dairy Plant

Sr. No	Leverage Ratios	Average Value for all 12 Plants	Average Value for Small Plants	Average Value for Medium Plants	Average Value for Large Plants
1	Total Debt to Assets ratio	79%	72%	85%	81%
2	Total Equity to total Assets	21%	28%	15%	19%
3	Total Debt to Equity	5.46	4.20	6.76	5.41
4	Interest coverage ratio	2.64	3.82	1.81	2.29
5	Long term debt to Long term funds	44%[[44%	50%	39%

From the above table it can be said that the Small sized dairy plants borrowed less and had a strong interest coverage ratio. The next in ranking was the large category. However the Medium sized dairy plants borrowed heavily (around 85%) and had very poor interest coverage ratio.

Table 8: Category Wise Turnover Ratios for all 12 Selected Dairy Plants, for Small (0-5 Lakh Liters per Day) dairy plants, Medium (5-10 Lakh Liters per Day) Dairy Plants and Large Size (Above 10 Lakh Liters per Day) Dairy Plants

Sr. No	Turnover Ratios	Average Value for all 12 Plants	Average Value for Small Plants	Average Value for Medium Plants	Average Value for Large Plants
1	Inventory turnover	24	41	19	12
2	Inventory Period	22	9	20	31
3	Debtors turnover	30	31	31	27
4	Debtors or Receivables period	12	12	12	14
5	Total creditors turnover ratio	12	16	10	9
6	Creditors period	31	23	38	39
7	Fixed Assets Turnover	17	16	14	19
8	Total Assets turnover	4	5	4	3
9	Current assets turnover	7	8	7	4

In the management of inventory and debtors, the small sized dairy plants outperformed both the other categories. The large size dairy plants had the lowest current assets turnover among the three categories and the Medium sized dairy plants had better ratios than large sized dairy plants.

Table 9: Category Wise Profitability Ratios for all 12 Selected Dairy Plants, for Small (0-5 Lakh Liters per day) dairy plants, Medium (5-10 Lakh Liters per Day) Dairy Plants and Large Size (above 10 Lakh Liters per Day) Dairy Plants

Sr. No	Profitability Ratios	Average Value for all 12 Plants	Average Value for Small Plants	Average Value for Medium Plants	Average Value for Large Plants
1	Gross profit margin	6.26%	7.90%	7.49%	3.39%
2	Net profit margin	0.38%	0.40%	0.27%	0.47%
3	Return on Assets	1.40%	2.06%	0.84%	1.31%
4	Return on equity	8.63%	10.65%	6.23%	9.00%

The Gross profit margin of small dairy plants was quite higher (7.9%) than large plants (3.39%) but the Net profit margin of large plants (0.47%) was higher than small sized plants (0.40%). This can be due to efficient selling and

distribution and administration activities of the large dairy plants. At the same time the return on equity of small dairy plants (10.65%) was higher than large dairy plants (9.00%) indicating relatively better usage of financial leverage by small plants. The return on equity of Medium sized dairy plants was quite lower (6.23%) than the other two categories. The net profit margin of medium sized dairy plants was also very poor than the other two categories.

Table 10: Category Wise Operating Ratios for all 12 Selected Dairy Plants, for Small (0-5 Lakh Liters per Day) Dairy Plants, Medium (5-10 Lakh Liters per Day) Dairy Plants and Large Size (above 10 Lakh Liters per Day) Dairy Plants

Sr. No	Operating Ratios	Average Value for all 12 Plants	Average Value for Small Plants	Average Value for Medium Plants	Average Value for Large Plants
1	Cost of Goods sold to sales ratio	0.9374	0.9210	0.9251	0.9661
2	Administrative cost to Sales	0.0519	0.0680	0.0584	0.0293
3	Marketing, selling and distribution	0.0080	0.0087	0.0124	0.0030
4	Financial charges	0.0064	0.0037	0.0087	0.0068
5	Net profit margin	0.0038	0.0040	0.0027	0.0047

The above table indicates that with respect to administrative costs, Marketing, Selling and distribution cost, large sized dairy plants were far better than small and medium dairy plants. However financial charges to sales ratio was lowest for small sized dairy plants. In all the measures viz. COGS, administrative cost, and financial charges the score of Medium sized dairy plants was relatively very poor.

Table 11: Cost Structures: Average Values of Cost for Small, Medium and Large Size Dairy Plants

Particulars	Average Value for Small (%)	Average Value for Medium (%)	Average Value for Large (%)	Average for all 12 Dairy Plants (%)
Sales	99.33%	99.17%	98.93%	99.15%
Non-operating surplus	0.67%	0.83%	1.07%	0.85%
Total Income	100.00%	100.00%	100.00%	100.00%
Expenditure				
Material consumed	85.53%	83.39%	84.61%	84.51%
Processing expenditure	0.91%	0.98%	2.18%	1.36%
Packaging expenditure	2.51%	3.36%	4.72%	3.53%
Power and Fuel Water Expenditure	1.75%	2.05%	2.50%	2.10%
Repairs & Maintenance Expenditure	0.64%	0.66%	0.59%	0.63%
Depreciation	0.77%	1.01%	0.83%	0.87%
Administrative costs	6.19%	5.26%	2.83%	4.76%
Expenditure on Marketing	0.68%	1.19%	0.30%	0.72%
Interest, financial charges	0.44%	0.77%	0.79%	0.67%
Other - Tax, TQM, Extension etc	0.15%	1.03%	0.18%	0.45%
Net Profit	0.44%	0.32%	0.45%	0.40%
Total Expenditure	100.00%	100.00%	100.00%	100.00%

From the above table it can be said that the major costs for dairy industry were – Raw material cost (84.5%), packaging (3.53%), Power and fuel (2.10%) and processing (1.30%).

CONCLUSIONS

From the above carried out financial ratio analysis for a five year period covering 2007 to 2011 for a group of 12 dairy plants of Gujarat state it can be concluded that- it could be concluded that- the Liquidity position of the selected dairy plants was satisfactory (Current ratio 1.24), the figures of leverage ratios indicate that the selected dairy plants used to

borrowed capital upto 80 % of total funds. Also, the Overall working capital position of the industry as measured by Debtors, Inventory and Creditors turnover ratio, was found to be satisfactory. The category wise computation of financial ratios indicated that Small dairy plants used lower proportion of borrowed funds and their debt servicing capacity measured by Interest coverage ratio was better than the industry. Also, the Total assets Turnover & Current assets turnover of Small Plants (5, 8) was better than Industry (4, 7)., indicating better management of assets by Small plants. With respect to profitability, the Gross profit ratio, Return on Assets (ROA) and Return on Equity (ROE) of small plants (7.9%, 2.06% & 10.65%) was found to be higher than Industry (6.26%, 1.40% & 8.63%). Analysis of the cost structure of the selected dairy plants indicated that the major costs for dairy industry were – Raw material cost (84.5%), packaging (3.53%), Power and fuel (2.10%) and processing (1.30%). The Medium sized dairy plants scored relatively poor on all major financial ratios as compared to other two categories indicating a scope of further research in this area to find the effect of the size of dairy plant affects on its performance.

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